



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,614	02/25/2004	Durham Kenimer Giles	CPS-2	2054

22827 7590 01/16/2007
DORITY & MANNING, P.A.
POST OFFICE BOX 1449
GREENVILLE, SC 29602-1449

EXAMINER

MILLER, ROSE MARY

ART UNIT	PAPER NUMBER
----------	--------------

2856

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<div style="border: 1px solid black; width: 150px; height: 20px; margin-bottom: 5px;"></div> Office Action Summary	Application No.	Applicant(s)	
	10/786,614	GILES, DURHAM KENIMER.	
	Examiner	Art Unit	
	Rose M. Miller	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/25/04, 7/22/04, 9/1/04, and 5/5/05.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-20 and 41-55 is/are allowed.
- 6) ☒ Claim(s) 21-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/1/04 & 5/5/05.</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the controller of claims 1 and 41, display of claims 3 and 44, microprocessor of claims 4 and 42, visual or audible alarm of claim 13, amplifying device of claim 18, current and voltage device of claim 19, filtering device of claim 20, pumping means of claim 41, plurality of microprocessors of claim 43, and alarm of claim 45 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Art Unit: 2856

4. Claims 21-40 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claimed invention is directed to a judicial exception to 35 U.S.C. 101 in that it is an abstract idea (formulated on a computer) and is not directed to a practical application of such judicial exception because the claim does not require any physical transformation and the claim does not produce a useful, concrete, and tangible result such as displaying the comparison for an operator to review.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 21, 25-26, 28, 36-38 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by **Baker et al. (US 5,004,152)**.

Baker et al. discloses a process for monitoring the operation of a fluid nozzle comprising: sensing vibrations occurring at a fluid nozzle while the nozzle is emitting a fluid (see abstract, column 5 line 19 – column 7 line 37); and comparing the sensed vibrations to a reference for determining whether the nozzle is operating properly (see abstract, column 5 line 19 – column 7 line 37).

With respect to claim 25, **Baker et al.** discloses a process wherein the sensed vibrations indicate whether any flow rate irregularities are occurring through the nozzle (see column 5 line 19 – column 7 line 37).

With respect to claim 26, **Baker et al.** discloses a process wherein the vibrations are sensed by an accelerometer (see column 5 line 19 – column 7 line 37).

With respect to claim 28, **Baker et al.** discloses a process wherein the reference comprises an initial vibration frequency pattern created by the fluid nozzle (see column 5 line 19 – column 7 line 37).

With regards to claims 36-38, **Baker et al.** discloses a process wherein vibrations are sensed at a frequency of from about 500 Hz to about 10,000 Hz, at a frequency of from about 1,000 about 8,000 Hz, or at a frequency of from about 2,000 Hz to about 7,000 Hz (see Figures 4(a) – 8(b)).

Allowable Subject Matter

7. Claims 1-20 and 41-55 are allowed.

8. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach and/or suggest a system for monitoring the operation of a fluid nozzle comprising: a fluid nozzle configured to emit a fluid according to a predetermined spray pattern and flow rate; a vibration sensor positioned in operative association with the fluid nozzle, the vibration sensor sensing nozzle vibration in at least one direction; and a controller in communication with the vibration sensor, the controller, based on vibrations sensed by the vibration sensor, being configured to convey information to an operator regarding the flow rate or the spray pattern of a fluid being emitted by the nozzle.

The prior art of record also fails to teach and/or suggest an agrochemical delivery system for dispensing controlled amounts of a fertilizer or pesticide onto a crop comprising: a reservoir for holding an agrochemical, said reservoir including an outlet for dispensing said agrochemical; a pumping means for moving the agrochemical; a distribution manifold in communication with the outlet of the reservoir, the distribution manifold being connected to a plurality of dispensing tubes; a plurality of fluid nozzles, each nozzle being placed on the end of a corresponding dispensing tube for dispensing an agrochemical onto a crop, each nozzle including a Z axis that comprises the direction of flow of an agrochemical through the nozzle, a Y axis that is perpendicular to the Z axis and parallel to a direction of travel of the agrochemical delivery system when the system is dispensing an agrochemical, and an X axis that is perpendicular to the Z axis and perpendicular to the Y axis; a plurality of vibration sensors positioned in operative association with selected fluid nozzles, the vibration sensors sensing nozzle vibration in at least one direction, the at least one direction comprising the Z axis direction, the Y axis direction, or the X axis direction; and a controller in communication with each of the vibration sensors for receiving a vibration output from each of the sensors, the controller being configured to compare the vibration outputs to a reference for determining whether the corresponding nozzles are operating properly.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 2856

Rogers et al. (US 4,905,897) discloses a field sprayer nozzle pattern monitor.

Ardell et al. (US 5,042,700) discloses a process and the equipment to determine disturbance variables when pouring molten metal from a container.

Wolf et al. (US 5,297,442) discloses a method to determine liquid flow rate for a manifold feed nozzle.

Nauful (US 5,571,974) discloses a method and apparatus for the measurement of particle flow in a pipe.

Joynes (US 2002/0073768 A1) discloses fluid flow sensors and leak detection systems.

Heaslip et al. (US 6,539,805 B2) discloses a liquid metal flow condition detection.

Giles et al. (US 2006/0225489 A1) discloses a system and method for determining atomization characteristics of spray liquids.

Giles et al. (US 2006/0265106 A1) discloses a networked diagnostic and control system for dispensing apparatus.

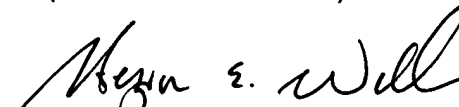
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rose M. Miller whose telephone number is 571-272-2199. The examiner can normally be reached on Monday - Friday, 7:30 am to 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



RMM
8 January 2007



HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800